

~~ZELENOV~~, Konstantin Konstantinovich; STRAKHOV, N.M., glavnyy red.; BUSHINSKIY, G.I., otv. red.; IL'INA, N.S., red. izd-va; POLYAKOVA, T.V., tekhn. red.

[Lithology of lower Cambrian deposits in the northern slope of the Aldan massif] Litologiya nizhnnekambriiskikh otlozhenii severnogo sklona Aldanskogo massiva. Moskva, Izd-vo Akad. nauk SSSR, 1957. 121 p. (Akademiya nauk SSSR. Geologicheskii institut. Trudy No.8).
(Aldan Highland--Rocks, Sedimentary) (MIRA 11:1)

AUTHOR: Zelenov, K. K.

SOV/20-120-5-44/67

TITLE: On Dissolved Iron Carried Into the Okhotsk Sea by the Hot Springs of the Ebeko Volcano (Paramushir Island) (O vynosе rastvorennogo zheleza v Okhotskoye more gidrotermami vulkana Ebeko (o. Paramushir))

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 5, pp.1089-1092 (USSR)

ABSTRACT: The lithogenesis of effusive-sedimentary rocks with which a great number of various mineral resources is connected depends above all on the development of volcanic processes. A sudden penetration of huge quantities of different eruption products and their subsequent physicochemical metamorphosis change the normal and already widely known course of zonal marine sedimentation (Ref 4). In this connection hydrothermal activity plays an important role. Various acids transform the condensation water of volcanic vapor into acid solutions (until a pH of 1 - 3). Such acid hot springs are widely spread on the Kuril (Kuril'skiye Ostrova) Islands. Their water often is emptied into the sea where the solved materials coagulate with the sea water and form suspensions. This can be observed

Card 1/3

SOV/20-120-5-44/67

On Dissolved Iron Carried Into the Okhotsk Sea by the Hot Springs of the Ebeko Volcano (Paramushir Island)

very well near the Ebeko volcano (1137 m above sea level). It is the only active volcano in the Vernadskiy ridge (Refs 1,3). At present it is in the solfatara and hydrothermal stage of activity. The hot springs flowing on its fumarole fields and in the upper part of its cone can be divided according to their exterior into three main groups: 1) into springs which form due to condensation of volcanic vapors and gases, 2) into high-temperature springs which circulate on the periphery of the bottom of the volcano, 3) into springs which form due to infiltration of atmospheric water. These groups are described in detail. The analyses of their waters are given in reference 3. In this paper only the behavior of iron is discussed. The springs form 3 brooks the biggest of which, the acid brook Yur'yeva, discharges into the Okhotsk Sea. It is described in detail. It can be seen from the given data that the acid volcanic hot waters act energetically on the surrounding rocks and that they carry a considerable quantity of iron (and perhaps also other elements) in the solution into the sea. These waters are capable of preserving a high concentration of hydrogen ions (low pH values) and of keeping the iron as well as other elements in the solution even several

Card 2/3

SOV/20-120-5-44/67

On Dissolved Iron Carried Into the Okhotsk Sea by the Hot Springs of the
Ebeko Volcano (Parasushir Island)

kilometers off the shore. This iron coagulates and forms
suspensions which then distribute according to the hydro-
dynamic regime of the waters. There are 4 references, 4 of
which are Soviet.

ASSOCIATION: Geologicheskii institut Akademii nauk SSSR
(Institute of Geology, AS USSR)

PRESENTED: March 3, 1958, by N. M. Strakhov, Member, Academy of Sciences,
USSR

SUBMITTED: February 28, 1958

1. Volcanoes--Geophysical effects
2. Okhotsk Sea--Chemical
analysis
3. Iron--Sources
4. Water--Absorptive properties
5. Iron--Solubility

Card 3/3

ZELENOV, K.K.

On the evacuation of dissolved aluminium and iron by thermal waters
of active volcanos on the Kurile island arc

Paper presented at the 12th General Assembly of the IUGG,
Helsinki, Finland July 1960

ARKHANGEL'SKAYA, N.A.; ORIGOR'YEV, V.N.; ZELENOV, K.K.; PAVLOVSKIY, Ye.V.,
otv.red.; VERSTAK, O.V., red.lad.va; POLENOVA, T.P., tekhn.red.

[Facies of lower-Cambrian sediments in the southern and western
outskirts of the Siberian Platform]- Vatsii nizhnemebriiskikh
otlozhenii iuzhnoi i zapadnoi okrain Sibirskoi platformy. Moskva,
Izd-vo Akad.nauk SSSR, 1960. 199 p. (Akademiia nauk SSSR. Geologicheskii
institut. Trudy, no.33). (MIRA 13:11)
(Siberian Platform--Sediments (Geology))

MASLOV, Vladimir Petrovich; SHATSKIIY, N.S., akademik, glavnyy red.;
VAKHRAMEYEV, V.A., otv.red.; ZELENOV, K.K., otv.red.;
II'INA, N.S., red.izd-va; KUZ'MIN, I.F., tekhn.red.

[Stromatolites; their genesis, method of study, relation with
facies, and geological significance, based on studies of
Ordovician deposits of the Siberian Platform] Stromatolity; ikh
genezis, metod izucheniia, sviaz' s fatsiiami i geologicheskoi
znachenie na primere ordovika Sibirskoi platformy. Moskva, Izd-
vo Akad. nauk SSSR, 1960. 186 p. (Akademia nauk SSSR.
Geologicheskii institut. Trudy, no. 41) (MIRA 14:2)
(Siberian Platform—Stromatolites)

ZELENOV, K.K.

Evacuation of dissolved aluminum by thermal waters of the Kurile Ridge and certain problems in the formation of geosynclinal bauxite deposits. Izv. AN SSSR. Ser. geol. 25 no. 3:57-71
Mr '60. (MIRA 13:12)

1. Geologicheskii institut AN SSSR, Moskva.
(Kurile Islands--Aluminum)

ZELENOV, K.K.

Migration and accumulation of iron and aluminum in volcanic areas
of the Pacific. Izv. AN SSSR. Ser. geol. 25 no. 8: 52-74 Ag '60.
(MIRA 13'8)

1. Geologicheskii institut AN SSSR, Moskva.
(Pacific Ocean--Iron)
(Pacific Ocean--Aluminum)

ZELENOV, K.K.

Subaqueous and ground hydrothermal processes and their role in
the sedimentary ore formation. Trudy Lab.vulk. no.19:123-134
'61. (MIRA 14:9)

(Rocks, sedimentary) (Volcanoes)

ZELENOV, K.K.; KANAKINA, M.A.

Lake Biryuzovoye (Zavaritskiy Caldera) and the change in its
chemical characteristics resulting from the 1957 eruption. Biol.
Vulk. sta. no.32:33-44 '62. (MIRA 15:10)
(Zavaritskiy Volcano)

ZELENOV, K.K.

Geochemistry of aluminum and titanium in the areas of volcanic activity. Sov.geol. 6 no.3:61-81 Mr '63. (MIRA 16:3)

1. Geologicheskii institut AN SSSR. (Kurile Islands--Aluminum) (Kurile Islands--Titanium ores)
(Kurile Islands--Geochemistry)

ZELENOV, K.K.

Submarine volcanism and its role in the formation of sedimentary rocks.
Trudy GIN no.81:30-26 '63. (MIRA 17:9)

GRIGOR'YEV, V.M.; ZELENOV, K.K.

Source of germanium in iron ores. Gekhimia no.5:582-586 My '65.
(MIRA 18:9)

ZELENCV, K.K.; ZOTOV, A.V.; MAKSAREVA, T.S.; FOKYEV, V.M.

Characteristics of the neutralization of acid solutions using
sea water. Izv. vys. ucheb. zav.; geol. i razv. 8 no.9:120-
123 S 165. (MIRA 18:9).

1. Moskovskiy geologorazvedochnyy Institut imeni S. Ordzhonikidze.

ZELENOV, K.K.

Volcanic titanium in a supergene zone. Izv. AN SSSR. Ser. geol.
30 no. 10:63-74 0 '65. (MIRA 18:12)

1. Geologicheskii institut AN SSSR, Moskva. Submitted March 19,
1965.

ZELENOV, K.K.; TKACHENKO, R.I.; KANAKINA, M.A.

Redistribution of ore-forming elements in the process of
hydrothermal activity of the Ebeko Volcano (Paramushir
Island). Trudy GIN no.141:140-167 '65.

(MIRA 19:1)

ZELENOV, K.K., kand. geol.- mineral. nauk (Moskva)

Volcanoes of Indonesia. Priroda 52 no.9:105-107 '63.
(MIRA 16:11)

ZELENOV, K.K.

Remarks on the review of the chemogenic theory of bauxite formation.
Lit. i pol. iskop. no.3:168-169 My-Je '64. (MIRA 17:11)

1. Geologicheskii Institut AN SSSR.

ZELENOV, K.K.

Iron and manganese in the exhalations of the submarine Banu Yuku
Volcano (Indonesia). Dokl. AN SSSR 155 no.6:1317-1320 Ap '64.
(MIRA 17:4)

1. Geologicheskii institut AN SSSR. Predstavleno akademikom
A.L.Yanshinym.

ZELENOV, K.K.

Aluminum and titanium in the crater lake of the Kava Ijen
Volcano (Indonesia). Izv. AN SSSR. Ser. geol. 30 no.5:
32-45 My '65. (MIRA 18:6)

1. Geologicheskii institut AN SSSR, Moskva.

ZELENOV, N.S.

Problems of the further development of bus transportation in Moscow.
(MLRA 7:6)
Gor.khoz.Mosk. 28 no.3:19-21 Nr '54.

1. Nachal'nik Upravleniya passazhirskego avtotransporta Ispolkoma
Mossoveta. (Moscow--Motorbuses) (Motorbuses--Moscow)

SHAKHMATOV, S.S., gornyy inzh.; USACHEV, P.A., gornyy inzh.; YEFREMOV, A.G.,
gornyy inzh.; ZELENOV, P.I., gornyy inzh.; BERDICHEVSKIY, R.I., gornyy
inzh.

Using flotation and settling for dressing nonmagnetic ores. Gor. zhur.
no.7:60-62 JI '64. (MIRA 17:10)

1. Kol'skiy filial AN SSSR (for Shakhmatov, Usachev, Yefremov). 2.
Olenegorskiy gornoobogatitel'nyy kombinat (for Zelenov, Berdichevskiy).

SILANT'YEV, A.P., polkovnik; ZELENOV, P.T., polkovnik; LEBEDEV, P.N.,
mayor; KOVALEV, V.V., mayor

Flights are the main concern of the staff. Vest.Vozd.Fl.
no.2:26-40 F '61. (MIRA 14:7)

(Russia--Air force)

ZELENOV, S.

The eight hour shift in seven hours. Sov.profsoiuzy 7
no.23:38-40 D '59. (MIRA 12:12)

1. Predsedatel' zavkoma moskovskogo zavoda "Stankonormal'."
(Moscow--Machinery Industry)
(Hours of labor)

ZELENOV, S. G.

SR/Societies - Political Propaganda

JUL 50

Let Us Raise the Ideological-Political Level and Quality of Lectures Conducted by the Society," S. G. Zelenov

Travka 1 Zhizn'" No 7, pp 40-44

At the 6th plenum of the administration of the All-Union Soc for the Propagation of Pol and Sci Knowledge, examples were cited of lectures on a low scientific and ideological level, including those read at the Central Lectorium and especially those in the rural areas. Mentions specifically: Fomichev's lecture (Krasnodar) "Hypnosis and Suggestion as a Method of Exposing Religious Ideas"; Fedyanin's lecture (Stavropol') "The

221796

Great Russian People and Their Role in History"; Istretov's lecture (Crimea) "Sleep and Dreams"; and Mordvinova's lecture (Mari ASSR) "Dialectical Materialism, Etc."

221796
301006

OLAZKOV, P.G., inzh.; SLADKOSHTEYEV, V.T., kand.tekhn.nauk; TELESOV, S.A.,
inzh.; OFENGENDEN, A.M., inzh.; STRELETS, V.M., kand.tekhn.nauk;
MURZOV, K.P., inzh.; Primalni uchastiye: MALAKHA, A.V.; DRUZHININ,
I.I.; YELIOSOF, A.V.; YEVTUSHENKO, V.B.; OSIPOV, V.G.; BABASKIN,
Yu.Z.; SLIN'KO, A.N.; ZELENOV, S.N.; GENKIN, V.Ya.; PITAK, N.V.;
VYSOTSKAYA, T.M.

Investigating the operation of multiple-pit continuous steel cast-
ing arrangements. Trudy Ukr. nauch.-issl. inst. met. no.7:133-142
'61. (MIRA 14:11)

(Continuous casting--Equipment and supplies)

SOV/137-58-7-14538

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 85 (USSR)

AUTHORS: Zelenov, V.I., Yurchenko, A.V.

TITLE: ~~An Investigation of Gold-bearing Ore~~ (Issledovaniye zolotoso-
derzhashchey rudy)

PERIODICAL: Tr. n.-i. gornorazved. in-ta "Nigrizoloto", 1957, Nr 24,
pp 130-140

ABSTRACT: A description is presented of the results of investigations conducted for the purpose of developing a rational procedure for extracting Au from the ore. It is established that the most efficient method with this ore is cyanidation, permitting recovery of up to 95% of the Au. Two methods of crushing the ore before cyanidization are suggested: 1) a method involving washing of the fines before the second crushing and delivery thereof to a pulverizing cycle, and 2) a method employing a rod mill instead of a cone crusher for stage 2 crushing, followed by a pulverizing cycle. The possibility of using the solutions after cyanidation (after they have been deoxidized and the gold has been precipitated) to treat subsequent portions of the ore and old amalgamation tailings from another occurrence is

Card 1/2

SOV/137-58-7-14538

An Investigation of Gold-bearing Ore

studied. It is noted that the processes of dissolution of the Au from the ore and precipitation thereof from solution become difficult when the accumulation of Cu in the solution reaches 300 g/t. In this connection a study is made of the kinetics of the accumulation of Cu in return solutions and of the dependence of the Cu concentration on the quantity of return solution. Calculations show that it is possible to make use of cyanidation return solutions, as the concentration of Cu therein after the 10% solution is excluded from the process does not exceed 14 g/t.

L.P.

1. Gold ores--Processing 2. Gold ores--Test results 2. Cyanides--Applications

Card 2/2

S/137/62/000/005/036/150
ACC6/A101

AUTHOR: Zelenov, V. I.

TITLE: Selenium and tellurium behavior in processing some types of auriferous ore

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 5, 1962, 19, abstract 5G117
("Sb. materialov po gorn. delu, obogashcheniyu i metallurgii, Tsentr. n.-i. gornorazved. in-t", 1961, no. 6, 55 - 63)

TEXT: To study the behavior of Se and Te in the process of concentrating and metallurgically processing Au-ores, analyses were made of gravitation and flotation concentrates and Au-containing Zn-precipitates - i. e. slimes obtained from a great number of gold extracting plants. During refining of sulfide-quartz ores, containing Te in the form of tetradymite, Te is concentrated in thin ore fractions. In gravitation concentration of such ores at the plants, Te extraction into concentrates attains up to 7.5% and the degree of its concentration is 44. Se in gravitation concentration is extracted even worse. Up to 80% Te and 30 - 40% Se are extracted from sulfide-quartz ores during flotation. In cyaniding

Card 1/2

Selenium and tellurium behavior in...

S/137/62/000/005/036/150
A006/A101.

sulfide-quartz and oxidized ores, Te is dissolved slightly in the cyanide solution. When cyaniding Au-Se ores, Se is dissolved to 10 - 15%. From cyanide solutions Se is partially precipitated together with Au on Zn. In acid processing and washing of Au-containing Zn-precipitates, Se and Te are not dissolved and not lost. Considerable losses of Se and Te are observed at high-temperature drying of these products. When roasting arsenic Au-containing concentrates at an arsenic plant, up to 82% Se and about 40% Te pass into As_2O_3 . With gas and dust > 50% Te go away into the atmosphere and 10% remain in the cinder. In the roasting process at the plant a more than 10-fold Te concentration and 6-fold Se concentration was observed in some dusts.

G. Svodtseva

[Abstracter's note: Complete translation]

Card 2/2

S/137/62/000/005/035/150
A006/A101

AUTHOR: Zelenov, V. I.

TITLE: Means of by-extraction of selenium and tellurium from gold-bearing ores and products of their processing

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 5, 1962, 19, abstract 50116 ("Sb. materialov po gorn. delu, obogashcheniyu i metallurgii. Tsentr. n.-i. gornorazved. in-t", 1961, no. 6, 64 - 69)

TEXT: On the basis of laboratory investigations of Te-extraction from sulfide-quartz Au-ores, it is recommended to separate by flotation tetradymite mineral with extracting into the concentrate 79.1% Te, 54.7% Se and 91.2% Au. From the concentrate, Te is extracted up to 85% by chlorination with Cl (gas) in Fe salt solutions with subsequent Te precipitation with the aid of SO₂. From Au-Se ores, Se can be sublimated by roasting at 750°C with Au extraction by cyaniding. For oxidized Au-Se-ores, a scheme developed by I. N. Plaksin was tested: leaching out with CaCl₂ solution yields 63% Se and 65% Te extraction. To extract Se and Te from auriferous Zn-precipitates, they should be dried at

Card 1/2

Means of by-extraction of...

S/137/62/000/005/035/150
A006/A101.

< 300°C and subjected to acid treatment. Arsenic plant dusts contain up to 130 g/t Se and up to 560 g/t Te, which can be extracted according to the scheme of processing sublimates.

A. Tseydler

[Abstracter's note: Complete translation]

Card 2/2

S/136/61/000/012/003/006
E193/E383

AUTHORS: Zelenov, V.I. and Shtrineva, Z.M.

TITLE: Hydrometallurgical extraction of tellurium from tellurium-bearing products

PERIODICAL: Tsvetnyye metally, no. 12, 1961, 59 - 61

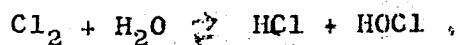
TEXT: Work carried out recently at TsNIGRI has shown that tellurides (mainly $\text{Bi}_2\text{Te}_2\text{S}$), present in several gold-ore deposits, can be separated by flotation and that a concentrate containing 3 500 g/t Te can be obtained in this manner. A hydrometallurgical process of extracting Te from this concentrate is described in the present paper. The development work was carried out on a flotation concentrate obtained during large-scale tests of separation of Te from low-sulphide, gold-bearing ores. The concentrate consisted mainly of pyrite and arsenopyrite and contained 400 g/t Te. A calcium hypochlorite mixture, alkaline solutions and solutions of chlorides of several metals were tried as the leaching reagents.

Card 1/13

S/136/61/000/012/003/006

Hydrometallurgical extraction E193/E383

The best results were obtained by treating the concentrate with gaseous chlorine in an aqueous solution of sodium chloride. This treatment was carried out in apparatus illustrated schematically in Fig. 1, showing: 5 - chlorinator (organic-glass vessel); 4 - pump; 3 - chlorine cylinder; 2 - vessel with saturated sodium-chloride solution; 6 - V-shaped pressure gauge with a floating contact; 1 - electromagnet; glycerin was used as the sealing fluid in the chlorinator and in the pressure gauge. The chlorine was circulated in the closed circuit: cylinder- chlorinator - pump - cylinder. The following optimum conditions of the treatment were established: particle size of the concentrate - 80% of the 0.074 mm fraction; liquid; solid ratio in the pulp 4:1; duration of the chlorinating treatment 30 min; chlorine consumption 320 kg per 1 ton of concentrate. 85% recovery was attained under these conditions. Hypochlorous acid, which is formed according to:



Card 2/43

Hydrometallurgical extraction

S/136/61/000/012/003/006
E193/E383

is the main oxidising agent in the process described.
(Te (60 - 80 g/t) is present in the solution as telluric acid
and possibly as a complex $\text{TeCl}_4 \cdot 2\text{NaCl}$. The beneficial effect
of sodium chloride is illustrated in Fig. 2, where the quantity
(mg) of tetradyte leached out is plotted against the
chlorination time (hours) in water (continuous curve) and in
a 10% sodium-chloride solution (broken curve). Te in the
leaching solution can be almost fully (97 - 98%) precipitated
with sulphur dioxide (28 kg/t of solution). The precipitate
obtained in this way constitutes a dark powder containing 53%
Te and a small quantity of As, Bi, Cu, Sb and Pb. By incorpor-
ating the process described in the present paper in the
treatment of low-sulphide Te- and gold-bearing ores (in the
manner shown on a flow-sheet given in the paper) more than
60% Te present in these ores can be recovered.
There are 3 figures and 4 Soviet-bloc references.

Card 3/4
3

ZELENOV, V.I.
ROSSOVSKIY, S.N.; ZELENOV, V.I.

Use of recirculating water in selective flotation. TSvet.net.
28 no.2:4-7 Mr-Ap '55. (MIRA 10:10)

1. Migrizoloto.

(Flotation)

ZELENOV, V.I.; SHAPIRO, A.P.

Flotation of tetradymite. TSvet. met. 33 no.6:14-17 Je '60.
(MIRA 14:4)

1. TSentral'nyy nauchno-issledovatel'skiy gorno-razvedochnyy
institut tsvetnykh, redkikh i blagorodnykh metallov.
(Flotation) (Tetradymite)

ZELENOV, V.I.; SHTRINEVA, Z.M.

Hydrometallurgical recovery of tellurium from tellurium-bearing
products. TSvet. met. 34 no.12:59, 61 D '61. (MIRA 14:12)
(Tellurium---Metallurgy)
(Hydrometallurgy)

S/133/62/000/005/006/008
A054/A127

AUTHORS: Vvedenskiy, V.S., Zolotov, V.A., and Prokhorenko, K.K.

TITLE: Distribution of nonmetallic inclusions in structural steel ingots

PERIODICAL: Stal', no. 5, 1962, 454 - 457

TEXT: Tests were carried out to determine the quantity, composition and distribution of nonmetallic inclusions in 3XH 2 MΦA (30KhN2MFA) steel ingots. The metal was reduced according to 6 versions, at metal temperatures between 1,530 and 1,630°C and by adding aluminum for reduction at various stages of the process in amounts of 0.5, 1.0 and 1.5 kg. Diffusion reduction was applied in two versions and precipitation reduction in the other versions. Prior to dissolving, the specimens were heat-treated to decrease the carbide content (water-quenching from 880°C, tempering at 300°C, cooling in the furnace). Dissolving took place in an electrolyte containing 3% FeSO₄ · 7 H₂O, 1% NaCl and 0.2% KNaC₄H₄O₆ (pH = about 4.5 - 5.5). The analysis results of the 6 versions were:

Card 1/3

S/133/62/000/005/006/008
A054/A127

Distribution of.....

Version	I	II	III	IV	V	VI
Total quantity of inclusions 10 ⁻³ %	17	11	12	10	6.4	5.8

Composition of the inclusions %

FeO ₄	1.7	1.7	0.8	1.4	1.6	1.9
Al ₂ O ₃	73.3	81.8	81.7	75.3	69.3	60.8
Silicates	25.0	16.5	17.5	23.3	28.1	37.3

(Versions I, II: diffusion method; versions III-VI: precipitation method).

The largest number of inclusions formed when applying version I (adding 0.5 kg aluminum/ton before tapping the metal into the ladle). When increasing the amount of aluminum to 1.0 kg (version V) or 1.5 kg (version VI) and applying the precipitation reduction method, the number of nonmetallic inclusions decreased, also in the skin layer of the ingot. Version VI produced the most uniform distribution of nonmetallic inclusions in the ingot and, at the same time these ingots showed the most homogeneous macrostructure, evidently on account of a more intensive reduction of the metal, whereas the greatest amount of nonmetallic inclusions can be found in zones of nonhomogeneous macrostructure, (axial zone of

Card 2/3

S/133/62/000/005/006/008

A054/A127

Distribution of.....

ingots, reduced according to versions, I, III and IV). In general the center of the ingot (in height and section) was impurified most by inclusions, whereas the zone below the riser contained the fewest impurities. By increasing the amount of aluminum added the difference in the size and shape of inclusions in the external and central parts of the ingot decreases. The increased amount of aluminum (1.0 - 1.5 kg/ton) also affects the composition of inclusions: it decreases their aluminum oxide content. In version III reduction was carried out by adding 0.5 kg aluminum/ton before tapping and 1.5 kg calciumsilicate/ton into the ladle. In this case the nonmetallic inclusions were mainly concentrated in the lower part of the ingot, whereas their distribution in the ingot section was fairly uniform. When reducing with increased amounts of aluminum (up to 1.5 kg/ton) aluminum oxides occur in crystal form and large conglomerates; when reducing with calcium-silicate, large, spheroidal inclusions are forming, containing aluminumoxide crystals, coated with silicate shells. There are 5 figures.

Card 3/3

SAMOYLOVICH, G., general-mayer inzhenernykh voysk; ZELENOV, V., in-
zhener-podpolkovnik

Maintenance of engineer equipment. Tekh. i vooruzh. no. 6:58-60
Je'64 (MIRA 1787)

ZELENOV, V.P., inzh., otv. za vypusk; USENKO, L.A., tekhn.red.

[Standard technological process for the repair of the
braking equipment of railroad cars] Tipovoi tekhnologiches-
skii protsess remonta tormoznogo oborudovaniia vagonov.
Moskva, Transzheldorizdat, 1963. 55 p. (MIRA 17:2)

1. Russia (1923- U.S.S.R.) Glavnoye upravleniye vagonnogo
khozyaystva.

ZELENOV, V.F.; SAGANOVSKAYA, V.V.

For the development of the manufacture of nonwoven fabrics.
Tekst. prom. 25 no.7:10-13 51 '65. (NERA 18:8)

1. Zamestitel' direktora po nauchnoy rabote Vsesoyuznogo nauchno-issledovatel'skogo instituta netkanykh tekstil'nykh materialov (for Zelenov) 2. Uchenyy sekretar' Vsesoyuznogo nauchno-issledovatel'skogo instituta netkanykh tekstil'nykh materialov (for Saganovskaya).

ZELENOV, V.P.

Needed change in the structure of mass consumption fabrics.
Tekst.prom. 20 no.10:15-16 0'60. (MIRA 13:11)

1. Glavnyy inzhener Serpukhovskoy tsentral'no-issledovatel'skoy
laboratorii.
(Textile fabrics)

ZELENOV, V.V.

ZELENOV, V.V.

Grinding ends of plunger bushings. Mashinostroitel' no.12:36-37
D '57. (MIRA 10:12)

(Grinding and polishing)

RYZHOV, K.I., inzh.; ZELENOV, V.Ye., inzh.

Ten kilovolt contact network for feeding gantry cranes.
Elek.sta. 31 no.5:28-31 My '60. (MIRA 13:8)
(Electric cranes)

87919

15.9300 2109.2209

S/138/60/000/008/005/015
A051/A029

AUTHORS: Bartenev, G.M.; Zelenov, Yu.V.

TITLE: The Connection Between the Coefficient of Frost-Resistance and the Maximum of Mechanical Losses of Rubber-Like Polymers in Repeated Deformation During Vitrification

PERIODICAL: Kauchuk i Rezina, 1960, No. 8, pp. 18 - 22

TEXT: A number of investigations were carried out by the authors into the mechanical losses in rubbers with various properties, such as: nitrile CKH-40 (SKN-40), butadiene-styrene CKC-30 (SKS-30) and methylvinylpyridine MBPK (MVPK). The Aleksandrov-Gayev instrument designed by the NIIRP (Ref. 4) was used, applying the hysteresis loop method. It is known that in repeated deformations under low temperatures synthetic and natural rubber change over from a high-elastic substance to a vitrified state (Ref. 1) and this process contrary to the structuralizing vitrification observed in all amorphous substances when cooled (Ref. 2) is designated here as mechanical vitrification. The frost-resistance which depends on this mechanical vitrification and is estimated from the temperature relationship of the high-elastic deformations has been carefully investigated in previous works

Card 1/5

87919

S/138/60/000/008/005/015
A051/A029

The Connection Between the Coefficient of Frost-Resistance and the Maximum of Mechanical Losses of Rubber-Like Polymers in Repeated Deformation During Vitrification

(Refs. 1,3,4). However, the changes in the mechanical losses during vitrification have not yet been dealt with. It is pointed out that in order to evaluate the frost-resistance of any article under conditions of repeated deformations of a mechanical nature, one must estimate the value of the frost-resistant coefficient at which the maximum mechanical losses are observed for various rubber-like polymers. The latter is also necessary in order to understand the process of vitrification more fully. The method used in the experimental procedure is outlined. Using the hysteresis loop method the coefficient of the mechanical losses X was determined as the ratio of the area of the hysteresis loop to the area enclosed within the load curve and the deformation axis. Figure 2 is a graph of the relationship between the relative hysteresis x , the tangent and the sine of the mechanical loss angle and the temperature. It is seen that both for x , $\tan \delta$ and $\sin \delta$ the maximum is reached at about the same temperature. There is a direct proportion between the inverse temperature $1/T_k$ and the logarithm of the frequency curve of the mechanical force for samples subjected to preliminary mechanical forces with a frequency of 10 oscillations/min and a force amplitude 2.5 times greater than that us-

Card 2/5

87919

S/138/60/000/008/005/015
A051/A029

The Connection Between the Coefficient of Frost-Resistance and the Maximum of Mechanical Losses of Rubber-Like Polymers in Repeated Deformation During Vitrification

ed in the measurements. It was seen that the temperature of vitrification was higher for samples not subjected to preliminary forces. As the deformation frequency increases, the vitrification temperature of the non-subjected samples approaches that of the samples with a stabilized structure. It is assumed that the vitrification temperature drops due to the irreversible break in the weak, secondary bonds during mechanical effects and due to a decrease in the intramolecular action. The measurement data show that for the different rubbers investigated the high-elastic deformation is reached at different temperatures. Therefore the frost-resistant coefficient K for these rubbers is determined from Formula 2 as the ratio of the deformation amplitude ϵ_0 at a given temperature to the amplitude of the established high-elastic deformation ϵ_∞ . The frost-resistant coefficients for the investigated rubbers could be determined by comparing the temperature relationships of the K and the x values of the three rubbers which would correspond to the maximum of mechanical loss. The Aleksandrov mechanical model with the same relaxation time was used to estimate the value of the frost-resistant coefficient, corresponding to the maximum of mechanical loss. It was

Card 3/5

$$K = \frac{\epsilon_0}{\epsilon_\infty}$$

87919

S/138/60/000/008/005/015
A051/A029

The Connection Between the Coefficient of Frost-Resistance and the Maximum of Mechanical Losses of Rubber-Like Polymers in Repeated Deformation During Vitrification

found that $K \approx 0.1$. Therefore the temperature, at which the maximum of mechanical losses is observed, corresponds to the temperature, at which the ten-fold loss of the high-elasticity takes place. The application of the mechanical model with the same relaxation time is insufficient for the explanation of the mechanical properties of the investigated materials. There are 6 figures, 7 formulae and 8 Soviet references.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (Scientific Research Institute of the Rubber Industry)

Card 4/5

87919

S/138/60/000/008/005/015
A051/A029

The Connection Between the Coefficient of Frost-Resistance and the Maximum of Mechanical Losses of Rubber-Like Polymers in Repeated Deformation During Vitrification

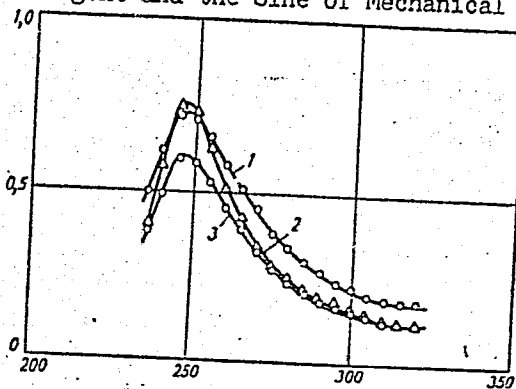
Figure 2:

Dependence of the Relative Hysteresis x , the Tangent and the Sine of Mechanical Losses on the Temperature:

- 1 - relative hysteresis x ;
- 2 - tangent of the angle of mechanical losses; 3 -
- sine of the angle of mechanical losses

Relative Hysteresis x ;
tg of the Angle of Mechanical Losses; sine of the Angle of Mechanical Losses

Относительный гистерезис x ;
tg угла механических потерь;
sin угла механических потерь



Card 5/5

Temperature, °K

YANOVSKIY, YU.G., VINOGRADOV, G.M., KRASHENNIKOV, S.K., SHIFMAN, V.S.
DEMISHEV, G.K., ZELENOV, YU.V.

Apparatus for testing polymers with audio-frequencies.

Report presented at the 13th Conference on high-molecular compounds
Moscow, 8-11 Oct 62

SHILOVA, Ye.I.; ZELENOVA, A.F.; KOROVKINA, L.V.

Comparative characteristics of the composition of solutions and
lysimetric waters in newly reclaimed Podzolic soils. Pochvovedenie
no.4:45-59 Ap '63. (MIRA 16:5)

1. Leningradskiy universitet imeni A.A.Zhdanova.
(Podzol) (Soils--Composition)

ZIMOVETS, B.A.; ZELENОВА, A.I.

Iodine content of soils in the Amur basin. Pochvovedenie no.11:
25-35 N '63. (MIRA 16:12)

1. Pochvenhyy institut imeni V.V. Dokuchayeva.

...which provided chemical polishing, a baryta standard series for comparison. The effect of chemical polishing on surface smoothness was measured on specimens initially ground to smoothness grades 9.2 through 9.9. The surface roughness of the initial and polished specimens was measured.

...strokes per minute. The number of strokes to rupture was used as a measure of surface roughness.

...at 100% relative humidity = 70%. Chemically and electrochemically polished specimens were tested simultaneously. Optimal high gloss was obtained by 10-min polishing at 70°C, less with both shorter and longer polishing. The gloss obtained with 10-min polishing is temperature-sensitive, with a distinct peak at 70°C, but the gloss obtained with 5-min polishing is almost

Card 2/3

any prior publication.
(unnumbered) table; no references.

ASSOCIATION: None given.

Card 3/3

ZELENOVA, E.I., referant

Cone granulators for dry concentrates. Biul. TSIIN tsvet. met.
no.10:39 '58. (MIRA 11:9)
(United States--Ore dressing)

ZELENOVA, E.I., referent

Vacuum dezinking of silver crust. Biul. TSIIN tsvet. met. no. 11:37-
39 '58. (MIRA 11:7)

(France--Silver--Metallurgy)

ZELENOVA, G.I.

Epigenetic redistribution of iron in red beds of the Kul'dzhuktau.
(MIRA 16:9)
Trudy IGEM no.99:140-146 '63.
(Kul'dzhuktau--Iron ores)
(Kul'dzhuktau--Rocks, Sedimentary)

VANBYEV, I.I.; GORLOVSKIY, S.I.; ZASHIKHIN, N.V.; LIPKINA, T.Ye.; Prinimali
uchastiye: LAZAREVSKIY, A.P.; ZELENKOVA, I.M.; VOLOSMIKOVA, T.P.;
TOMKOVID, Ye.I. [deceased]; PETROV, I.V.; MOSELOV, M.V.;
NIKIFOROVA, D.I.

Use of high molecular organic depressants in the flotation of
copper-nickel ores. Obog. rud 6 no.2:3-9 '61. (MIRA 14:8)

(Flotation—Equipment and supplies) (Nonferrous metals)

ZELENOVA, I. N.

Squash

Effect of supplemental pollination on the yield of squashes. Sad i og. No. 6, 1952.

9. Monthly List of Russian Accessions, Library of Congress, _____ 1953. Unclassified.

USSR/Cultivated Plants - Potatoes. Vegetables. Melons.

M

Abs Jour : Ref Zhur- Biol., No 12, 1958, 53647

Author : Zelenova, I.N.

Inst : Dykov Experimental Melon Station

Title : The Melons at the Dykov Experimental Melon Station

Orig Pub : Nauchn. tr. Dykovsk. bakhchevoy opyt. st., 1957, vyp. 4, 102-107

Abstract : This is a description of the varieties raised and improved by the Station for the Southeastern regions of RSFSR. The best of them are as follows: Dykovskaya 735 - medium maturing variety; Zinovka "with apple seeds" - medium-late variety; Zinovka 264-39 - transportable late variety; Dykovskaya 25 and Medovaya 5 - medium-late varieties. The article gives an outline of the selection process.

Card 1/1

USSR / Cultivated Plants. Potatoes, Vegetables, Melons. M-2

Abs Jour : Ref Zhur - Biologiya, No 2, 1959, No. 6290

Author : Zelenova, L. N.

Inst : Not given

Title : Additional Pollination of Gourd

Orig Pub : S.-kh. Povolozh'ya, 1958, No 7, 61-62

Abstract : No abstract given

Card 1/1

KULIYEVA, A.K.; ZELENova, K.V.

Compound treatment of chronic hepatitis and cirrhosis of the
liver. Zdrav. Turk. 7 no.6:9-12 Je'63. (MIRA 16:8)

1. Iz kafedry propedevticheskoy terapii (ispolnyayushchiy ob-
yazannosti zaveduyushchego - A.K.Kuliyeva) Turkmenskogo gosu-
darstvennogo meditsinskogo instituta.
(LIVER--DISEASES)

ZELENOVA, L.

Learning in the course of practical work. Politekh.obuch.
no.6:91-92 Je '59. (MIRA 12:12)

1. Kaluzhskiy pedagogicheskiy institut.
(Biology--Study and teaching)
(Field work (Educational method))

ZELENOVA, L. A.

USSR / General and Specialized Zoology. Insects.
Insect and Mite Pests.

P

Abstr Jour : Ref Zhur - Biol., No 10, 1958, No 44785

Author : Zelenova, L. A.

Inst : Not given

Title : The Clover Worn Bruchophagus Gibbus Boh. in the
Kaluzhskaya Oblast.

Orig Pub : Zashchita rast. ot vredit. i bolezney, 1957,
No 4, 58

Abstract : Mowing the tops of single-crop clover of the
Krasnyy and Yaroslavskiy varieties during bud-
ding was ineffective because the periods when
the clover worms emerged and laid their eggs
were protracted, and the beetles during the re-
peated budding of the clover had concentrated on

Card 1/2

ZELENOVA, L.A., kand.sel'skokhozyaystvennykh nauk

Injurious insects of the local fauna as objects of extracurricular work. Biol. v shkole no.4:56-60 J1-Ag '58. (MIRA 11:9)

1. Kaluzhskiy pedagogicheskiy institut.
(Entomology--Study and teaching) (Agricultural pests)

DMITRIYEV, Nikolay Leonidovich; ZELENOVA, L.; KUNAKOV, M.; YERSHOVA, I.,
red.; IVANOV, N., tekhn. red.

[Plant and animal world of Kaluga Province] Rastitel'nyi i zhivot-
nyi mir Kaluzhskoi oblasti. Kaluga, Kaluzhskoe knizhnoe izd-vo.
No.1. [Plant world] Rastitel'nyy mir. 1961. 113 p.

(MIRA 15:1)

(Kaluga Province--Botany)

DMITRIYEV, N.; ZELENKOVA, Lidiya Andreyevna; KUNAKOV, Mikhail
Yemel'yanovich. Prinimali uchastiye: KOLESNIK, I.A.;
KOLESNIKOV, S.M.; MAKOVSKAYA, O.V.; YERSHOVA, I., red.;
IVANOV, N., tekhn. red.

[Plant and animal world of Kaluga Province] Rastitel'nyi i
zhivotnyi mir Kaluzhskoi oblasti. Kaluga, Kaluzhskoe knizhnoe
izd-vo. No.1. [Animal world] Zhivotnyi mir. 1962. 184 p.
(MIRA 15:6)

(Kaluga Province--Zoology)

30(1)

SOV/12-91-2-21/21

AUTHOR: Zelenova, N.

TITLE: A Phenological Survey of the Best Times to Sow Corn

PERIODICAL: Izvestiya Vsesoyuznogo geograficheskogo obshchestva,
1959, Nr 2, p 204 (USSR)

ABSTRACT: The author stresses the importance of a proper Corn Sowing Time Table, especially for the areas newly cultivating corn. Too early or too late sowing can be equally disastrous, and can result in the freezing of the crop. At some kolkhozes the sowing of corn was timed to coincide with the flowering of the apple and other fruit trees. The phenological department of the VGO undertook from 1954 to 1957, to study this problem according to local conditions. About 12,500 inquiry cards were sent out. Many of them were returned, and are now being evaluated. It is suggested that four more years be spent for the collection of

Card 1/2

SOV/12-91-2-21/21

A Phenological Survey of the Best Times to Sow Corn

data on the best times to sow corn, before comparative tables on the various types of the spring season can be established.

Card 2/2

ZELENOVA , N.

"The Serological Method for Determining the Disease Resistance of Flax Varieties," Itogi Nauchno-Issledovatel'skikh Rabot Vsesoiuznogo Instituta Zashchity Rastenii za 1936 Goda, part 2, 1937, pp. 351-355. 423.92 L541

So: Sira Sl-90-53, 15 Dec. 1953

USSR / Cultivated Plants. Cereal Crops.

M-3

Abs Jour : Ref Zhur - Biologiya, No 13, 1958, No. 58562

Author : Zelenova, N.

Inst : Geographical Society USSR

Title : Contribution to Observations on the Development of Corn

Orig Pub : Inform. byul. Fenol. sektor Geogr. o-va USSR, 1957,
No 7, 7-8

Abstract : No abstract given

Card 1/1

50

KOROPATNITSKAYA, O.L.; YERMULOVICH, Ya.Ye; ~~ZELENOVA, N.B.~~

Morphological reactions of the peritoneum in intraperitoneal prophylactic penicillin injection. Khirurgia 32 no.7:75-76 J1 '56.

(MLR 9:11)

1. Iz kafedry fakul'tetskoy khirurgii (zav. - prof. Ya.M.Voloshin) pediatricheskogo i sanitarno-gigiyenicheskogo fakul'tetov i kafedry patologicheskoy anatomii (zav. - prof. D.M.Khayutin) Odesskogo meditsinskogo instituta imeni N.I.Pirogova (dir. - prof. I.Ya. Deyneka)

(PENICILLIN) (INJECTIONS, INTRAPERITONEAL)
(PERITONEUM)

ZELENOVA, N.B.

Primary subacute septic endocarditis in children with congenital heart diseases. Vrach.delo no.6:641-642 Je '57. (MIRA 10:8)

1. Kafedra patologicheskoy anatomii (zav. - prof. D.M.Khayutin)
Odesskogo meditsinskogo instituta
(ENDOCARDITIS) (HEART--DISEASES)

BARBA, Ye.I.; ZELENova, N.B.

Acute dilatation of the atrium sinistrum. Vrach.delo no.6:643-645
Je '59. (MIRA 12:12)

1. Kafedra gospi'tal'noy terapii (zav. - zasluzhennyy deyatel' nauki,
prof. M.A. Yasinovskiy) Odesskogo meditsinskogo instituta i patologo-
anatomicheskoye otdeleniye gorodskoy klinicheskoy bol'nitsy.
(HEART--DISEASES)

GRACHEV, A.I.; ZELENova, N.B. (Odessa)

Ectopic chorioepithelioma of the liver in a man. Arkh.
pat. 10:77-79 '62. (MIRA 17:1)

1. Iz patologoanatomicheskogo otdeleniya (zav. - N.B.
Zelenova) I-y Odesskoy gorodskoy klinicheskoy bol'nitsy
(glavnyy vrach A.S. Teslik).

ZELENOVA, O. I.

Zelenova, O. I.

"The lithology and facies of the Alai formation of the Paleogene of the Tadzhik depression." Acad Sci USSR. Inst of the Geology of Ore Deposits, Petrography, Mineralogy, and Geochemistry. Moscow, 1956. (Dissertation for the Degree of Candidate in Geologicomineralogical Sciences).

Knizhnaya letopis'
No. 21, 1956. Moscow.

ZELENOVA, O.I.; VOLOVIKOVA, I.M.

Tuffaceous rocks in the marine deposits of the Alai stage of the Tajik depression. Dokl.AN SSSR 108 no.3:526-529 My '56.

(MLRA 9:8)

1. Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii Akademii nauk SSSR. Predstavleno akademikom N.M. Strakhovym.

(Tajikistan--Volcanic ash, tuff, etc.)

ZELENOVA, O. I.

15-57-1-375D

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 1,
p 59 (USSR)

AUTHOR: Zelenova, O. I.

TITLE: Lithology and Facies of the Alayskiy Stage in the
Paleogene of the Tadzhik Depression (Litologiya
i fatsii alayskogo yarusy paleogena Tadzhikskoy
depressii)

ABSTRACT: Bibliographic entry on the author's dissertation for
the degree of Candidate of Geological and Mineralogical
Sciences, presented to the Institute of Geology, Ore
Deposits, Petrography, Mineralogy and Geochemistry of
the AS USSR (In-t geol. rud. mestorozhd. petrogr.
mineral. i geokhim. AN SSSR) Moscow, 1956

ASSOCIATION: In-t geol. rud. mestorozhd. petrogr. mineral. i
geokhim. AN SSSR (Institute of Geology, Ore Deposits,

Card 1/2

15-57-1-3750

Lithology and Facies of the Alayskiy Stage (Cont.)

Petrography, Mineralogy, and Geochemistry of the AS USSR)

Card 2/2

ZELENOVA, O.I.; PEREL'MAN, A.I., doktor geol.-min.nauk, otv.red.;
KALANTAROV, A.P., red, izd-va; SIMKINA, G.S., tekhn.red.

[Lithology, facies, and geochemical characteristics of Alay
stage sediments in the Tajik Depression]: Litologiya,
fatsii i geokhimicheskie osobennosti otlozhenii Alaiskogo
iarusa Tadzhikskoi depressii. Moskva Izd-vo Akad. nauk SSSR.
1961. 127 p. 22 plates. (Akademiia nauk SSSR. Institut
geologii rudnykh mestorozhdenii, petrografii, mineralogii i
geokhimii. Trudy, no.53). (MIRA 15:10)
(Tajik Depression--Geology)

ZELENOVA, O. I.

Geochemical characteristics of the Paleogene in the Tajik
Depression. Vop. geog. no.59:164-171 '62.

(MIRA 16:1)

(Tajik Depression--Landforms)

(Tajik Depression--Geochemistry)

ACC NR:AP7006946

SOURCE CODE: UR/0129/67/000/001/0046/0048

AUTHOR: Verner, K. A.; Zelenova, V. D.; Doronin, V. M.; Buynov, A. F.

ORG: NAMI; GAZ; "Elektrostal'" Factory (Zavod "Elektrostal'")

TITLE: The effect of phosphorus on the structure and properties of 5Kh20N4AG9 steel

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 1, 1967, 46-48

TOPIC TAGS: austenitic steel, ^{steel structure,} precipitation hardenable steel, phosphorus, ~~containing steel~~, chromium, ~~containing steel~~, manganese, ~~containing steel~~, molybdenum, ~~containing steel~~, nickel, ~~containing steel~~, nitrogen, ~~steel property~~, phase composition, valve, exhaust valve, ~~steel~~ mechanical property/ 5Kh20N4AG9 steel

ABSTRACT: The effect of phosphorus on the mechanical properties, structure, phase composition, and dispersion strengthening of austenitic 5Kh20N4AG9 steel (0.51-0.60%C, 0.36-0.86%Si, 8.61-8.95%Mn, 20.2-21.2%Cr, 3.95-5%Ni, 0.68-0.73%Mo, 0.24-0.36%N, 0.016-0.42%P), used for engine exhaust valves, has been investigated. Ingots were forged at 1160-950°C

Card 1/2

UDC: 669.14.018.8:620.17:620.18

ACC NR:AP7006946

rolled to bars 20-25mm in diameter, and made into valves which were austenitized at 1150-1200°C, quenched, and aged at 700-800°C. Alloying 5Kh2ON4AG9 steel with phosphorus increased the mechanical properties at room and high temperatures. For instance, at 20 and 800°C, steel with 0.16%P and 0.72%Mo (Mo added up to 1% retards grain growth which is increased by P) has, respectively, a tensile strength of 133, and 44 kg/mm², an elongation of 6 and 10%, a reduction of area of 10 and 18%, notch toughness of 1.38 and 3.63 kgm/cm², and a Brinell hardness of 393 and 124 compared to 103 and 34 kg/mm², 8 and 25%, 10 and 28%, an undetermined notch toughness, and an HB hardness of 302 and 109, at 20 and 800°C respectively, for 5Kh2ON4AG9 steel containing 0.04%P. Steel containing 0.2%P and up to 1% Mo had the best combination of mechanical properties. Up to 0.2%P intensifies dispersion strengthening. After quenching, the phosphorus, dissolved in austenite, increases the lattice parameter, brings about strain and stress in the lattice, and increases the rate of precipitation of chromium carbide (Cr₂₃C₆) and nitride (Cr₂N), but P itself remains in the solid solution. Orig. art. has: 1 figure and 1 table.

[WW]

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 001

Card 2/2

SOV/137-57-10-20183

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 10, p 253 (USSR)

AUTHOR: Zelenova, V.D.

TITLE: A Radiographic Study of the Distribution of Cerium in Nodular Cast Iron (Izucheniye raspredeleniya tseriya v chugune s globulyarnym grafitom radiograficheskim metodom)

PERIODICAL: V sb.: Izuch. iznosa detaley mashin pri pomoshchi radioaktivn. izotopov. Moscow, AN SSSR, 1957, pp 128-134

ABSTRACT: Contact radiography is employed to determine points of localization of Ce in cast iron with spheroidal graphite. A comparison of photographs of microstructure and the corresponding radioautographs shows that the graphite globules serve as centers thereof.
E.Sh.

Card 1/1

~~VINOGRADOV, YU.M.~~ - ZELENKOVA, V.D.

AUTHOR: VINOGRADOV, Yu.M., ZELENKOVA, V.D. 32-6-18/54
 TITLE: The Application of the Radiostructural Analysis for the Investigation of Steel Sulphidization. (O primeneni rentgenostrukturnogo analiza pri issledovanii sushchivirovaniya staley, Russian)
 PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol 23, Nr 6, pp 697-699 (U.S.S.R.)
 ABSTRACT: For the purpose of determining the results of the thermochemical treatment of steel, - of sulphidization - the results of friction- and wearability tests can be compared with those obtained by the phase analysis of the upper layer of the products to be sulphided. In this way it is possible to find out upon which of the reagents existing in the upper metal layers the efficacy of sulphidization depends. The investigation was carried out by means of radiostructural analysis. A direct connection was found to exist between the increase of the frictional properties of steel sulphidization and the forming of the chemical compound FeS on the metal surface. Results showed that during sulphidization in the case of different compositions and at different temperatures, the surface layer has different compositions of the respective phases. The top layer of the product to be sulphided can contain the following reagents by which the phase is composed: the α -Fe lattice, FeS-sulphide, FeN-nitride (ϵ -phase), Fe_4N -nitride (γ -phase), the ferric oxides: FeO_4 , Fe_2O_3 , FeO.

Card 1/2

32-6-18/54

The Application of the Radiostructural Analysis for the Investigation of Steel Sulphidization.

Experiments were carried out with a machine with four rollers (LTO-4). The roll rotating with a velocity of 300 wg/min was made of (40x) steel and was hardened to 40-42 R₀. Pure sulphidization was obtained with the following compositions: 2 g NaCN, 6 g Na₂S₂O₃ per 100 g mixture of 55% Na₂SO₄ and 45% KOI at a temperature of 560° and a duration of one hour.

ASSOCIATION: Institute for the Construction of Chemical Machines for Scientific Research.

PRESENTED BY:

SUBMITTED:

AVAILABLE: Library of Congress

Card 2/2

SOV/126-6-5-30/43

AUTHORS: Gulyayev, A.P., and Zelenova, V.D.

TITLE: X-ray Investigation of the Transformation of Martensite on Tempering a Powder and a Solid Specimen (Rentgeno-graficheskoye issledovaniye prevrashcheniya martensita pri otpuske v poroshke i v sploshnom obraztse)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 5, pp 936 - 937 (USSR)

ABSTRACT: In the papers (Refs 1 and 2) a method for the separation of isolated martensite from quenched steel by anodic solution has been described. This method was applied in the present work, the aim of which was to compare the process of martensite decomposition on tempering in a solid specimen with that of isolated crystals of martensite. From X-ray photographs it is evident that in isolated martensite stresses of the second order are considerably less, which confirms earlier conclusions (Refs 1, 3). In order to study the characteristics of decomposition of isolated martensite during tempering, simultaneous heating of the specimen and of the powder was carried out at various temperatures, followed by soaking for five minutes and in the case of other specimens

Card1/3

SOV/126-6-5-30/43

X-ray Investigation of the Transformation of Martensite on Tempering
a Powder and a Solid Specimen

for various soaking times at 100 °C. The carbon concentration in the solid solution was worked out by the formula:

$$C = \frac{c/a - 1}{0.0467}$$

where C is the weight percentage of carbon in martensite, c/a is the degree of tetragonality of the martensite lattice.

The results of these measurements are shown in Figures 1 and 2. In the residual austenite of the quenched steel compressive stresses arise which must be balanced by tensile stresses in the martensite; these are evidently removed on isolating crystals of martensite. The lattice parameter of the martensite in quenched steel in the solid specimen is 2.983 Å and in the powder of the same specimen 2.969 Å. Hence, tensile stresses enlarge the lattice of

Card2/3

SOV/126-6-5-30/43

X-ray Investigation of the Transformation of Martensite on Tempering
a Powder and a Solid Specimen

martensite which causes a greater percentage of carbon
to be retained in solution. There are 2 figures,
and 4 references, 3 of which are Soviet and 1 German.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy avto-
mobil'nyy i avtomotornyy institut
(State Scientific Research Automobile and
Automobile Engines Institute)

SUBMITTED: May 15, 1957

Card 3/3

SOV/126-6-5-36/43

AUTHORS: Gulyayev, A.P., and Zelenova, V.D.

TITLE: Investigation of Martensitic Transformation in Austenitic Powder (Issledovaniye martensitnogo prevrashcheniya v austenitnom poroshke)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 5, pp 945 - 946 (USSR)

ABSTRACT: Abruzov, N.P. (Refs 1 and 2) showed that the method of electrolytic dissolution of steels is applicable not only for separating out the carbide phase but also for separating out martensite from hardened steel. If steel with austenite as the basic phase component is subjected to electrolytic dissolution, provided certain electrolysis regimes are maintained, a residue can be obtained consisting of isolated γ -phase crystallites. The austenite powder was obtained by anodic dissolution of austenitic steel according to a regime used by N.M. Popova (Ref 3) for separating out the carbide phase, except that instead of cooling the electrolyte (which is recommended for a carbide analysis) it was heated to 30 - 50 °C. Even at temperatures below +5 °C, cooling of the electrolyte leads to a reduction in the content of the austenitic phase in

Card1/4

SOV/126-6-5-36/43

Investigation of Martensitic Transformation in Austenitic Powder

the separated-out residue. The electrolytic residue does not contain austenite crystallites. As an electrolyte, an aqueous solution of hydrochloric acid (1%) was used.

The current density was 0.01 to 0.02 A/cm² with an electrolysis duration of four hours. The used specimens of the steel Kh12M (1.5% C, 12% Cr, and 0.3% Mo) were quenched from 1 150 °C and had an austenitic structure with residual carbides (see micro-photo, Figure 1a). Figure 1b shows a magnified photograph of the powder. Comparison of the two photographs shows that the thus produced powder is monocrystalline, i.e. each particle in the powder is one grain, since the dimensions of the powder particles are about equal to those of the (largest) grains in the metallographic cut. Study of the martensitic transformation of isolated crystals of austenite and of austenite in a monolithic specimen was carried out magnetically on an Akulov-type anisometer. The specimens were quenched from 1 150 °C and, following that, martensitic curves were plotted during cooling from room temperatures to the temperature of liquid nitrogen, both for the specimen and

Card2/4

SOV/126-6-5-36/43

Investigation of Martensitic Transformation in Austenitic Powder

for powder produced from the same specimen. The temperature at which austenite begins to transform into martensite was found to be -25°C for the solid specimen; cooling below that temperature brings about normal martensitic transformation. Cooling of austenitic powder of the same composition down to -196°C did not bring about formation of martensite, as can be seen from Figure 2 in which the martensitic curves are graphed for both the solid specimen and the powder. This effect is not due to the possible saturation with hydrogen during electrolysis of the austenitic powder. Annealing at $+200^{\circ}\text{C}$ of the powder as well as of the solid specimen did not bring about any change in the behaviour. The powder did not assume a tendency to become transformed and for the solid specimen the martensitic point also remained the same. Intensive deformation of the powder at room temperature (by means of a pestle in a mortar) results in the formation of about 5 to 10% martensite and the quantity of martensite does not increase during subsequent cooling down to the temperature of liquid nitrogen. The obtained results confirm the absence of

Card3/4 martensitic transformation in isolated austenite crystals,

SOV/126-6-5-36/43

Investigation of Martensitic Transformation in Austenitic Powder

as revealed in earlier work of one of the authors (Ref 4), although the method of obtaining isolated austenitic crystals differed in the two cases. Thus, no martensitic transformation takes place in austenitic monocrystalline powder. whilst in a solid steel specimen, austenite of the same composition will become transformed into martensite. Apparently, for obtaining martensitic transformation (type II) stresses are necessary which occur as a result of contact of differently orientated austenite crystals. This is a complete translation.
There are 2 figures and 4 Soviet references.

ASSOCIATION: Nauchno-issledovatel'skiy avtomobil'nyy i avtomotorny
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SUBMITTED: May 15, 1957

Card 4/4

AUTHOR: Zelenova, V.P.

32-1-25/55

TITLE: Electrolytic Separation of Martensite and Austenite From Hardened Steel (Elektroliticheskoye vydeleniye martensita i austenita iz zakalennoy stali).

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 1, pp. 60-62 (USSR)

ABSTRACT:

In this case the anode solutions of the carboniferous types of steel "У10", "У12" and "У13" are electrolytically treated under various conditions, and the following data are mentioned as the most suitable: electrolyte - 1-n potassium chloride solution with an addition of a 0,5% citric acid; temperature of the electrolyte + 3°; current density - 0.01-0.02 A/cm²; duration of electrolysis - 2 hours [Ref. 4]. Hardening of the samples is carried out in a 10% sodium hydroxide solution from temperatures of 900, 1100 and 1200°. In all 3 types of steel electrolytic precipitates resulted in the same radiograms of the insulated martensite. In this connection it is said that in hardened steel with a coarse-grained structure it is impossible to separate martensite powder, which is explained here by the too great difference existing between martensite and austenite. On the strength of the experiments carried

Card 1/2

Electrolytic Separation of Martensite and Austenite
From Hardened Steel

32-1-25/55

out the following theories are mentioned: The hardening temperature of the samples exercises no influence on the separation of martensite in the course of anode electrolysis. The velocity of cooling down from hardening temperature warrants the conservation of the hardening martensite; hardening martensite is not separated in the course of electrolysis; though the amount of the austenite content remaining in the steel is not essential, its presence is absolutely necessary for the forming of martensite powder on the anode; likewise, the presence of the carbide base is absolutely necessary for the conservation of the insulated austenite in the anode solution. There are 3 figures, and 4 Slavic references.

ASSOCIATION: Scientific Research Institute for Automobiles- and Automobile Motors (Nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut).

AVAILABLE: Library of Congress

Card 2/2 1. Martensite-Separation-Methods 2. Austenite-Separation-Methods